HORTICULTURE

AUGUST 15, 1941

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Useful Staking Suggestions

WHEN experience teaches us that certain plants are likely to fall over after being water-logged from long rains we might as well prepare a defense in advance rather than wait until the distressing thing has happened. With my annuals that are sure to need support I now set out the stakes at the time the seeds are planted. This has several advantages. It clearly marks positions for planting and when the seeds germinate there is little doubt as to whether they are weeds or flowers. Birds and animals sometimes trample down young seedlings. If the plants are close to a stake, this is unlikely to happen.

Tying plants to stakes is likely to be postponed a little too long if the stakes are not already set. Most staked plants should be tied at least twice as they increase in height and this is more likely to be done, if the stakes are already in position. For instance, tall marigolds should be tied just below the top leaves when the plants are about four to five inches high, again at about a foot and possibly once more at a height of 20 inches. Really tall plants like dahlias that have not been topped need to be tied about every 18 inches. Another thing about sticking a stake in the ground near a plant that has its root system well started is that it mutilates the roots.

Now that I have presented my theory about early staking, I offer a thought on the advantage of flexible staking. If the stake itself is stiff and the tying is done with a substance that cannot stretch, a strain is placed on the top-tied point of the plant in case of a high wind. Sometimes the stem actually breaks. The thin bamboo stakes in common use are excellent to combat this. They bend appreciably but never break and last for years. Being thin, they should be pushed rather deeply into the ground. When this is done they never sag.

My most important point, however, is the use of thin rubber bands for the actual tying. They are of a length sufficient to hold the plant loosely to the stake and only exercise a pull when the plant sways in strong wind or sags in a storm. A certain amount of free play also strengthens the plant. There are several ways of using the bands. The simplest is to merely slip them over the stake and allow the other end to rest on the plant stalk just below the top leaves. With this arrangement the band will slip down the stake a little but the leaves will prevent its falling far. This tendency can be overcome very simply by making a small loop in one end of the band by tying a knot in it. The small loop should be of a size to fit snugly over the stake. A way that is perhaps still easier is to provide some small bands (about quarter-inch size) to which the longer bands are attached by a slipknot such as is used in fastening tags.

As the individuality of plants and their relative distances from the stakes call for different lengths of bands, I use three sizes but mostly the three-inch ones. These usually meet all the requirements but any variation in length can be had by chaining two or more bands together in slipknots. For a still finer adjustment, any band can be shortened by tying a plain knot in it.

—William T. Innes.

Philadelphia, Pa.

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Garden Work to do NOW

A TWICE-A-MONTH GUIDE

KEEP the seed pods picked off annuals to prolong their period of bloom.

IT IS not too late to divide and replant bearded irises, thus eliminating borers and diseased rhizomes.

FERNS, begonias, and other house plants should soon be repotted into containers in which they are to spend the Winter.

EARLY potatoes should be lifted as soon as the vines are ripe. After digging, spread them thinly in a dry storage place until used.

WATERLILY leaves which show signs of tunnelling by leaf mining insects should be removed from the plant and destroyed as soon as noted.

EVEN though a lily-of-the-valley bed may not need replanting, it will be more floriferous next year if it is fed well and watered occasionally this season.

WHEN removing old raspberry canes—those which have borne fruit—be careful not to injure the younger stems which are being left to fruit next season.

A SWAMP over-run by the purple loosestrife may appear attractive, but those interested in the preservation of the native flora will suppress it in such areas.

MANY of the herbs may be cut and dried in a cool airy shady place to prepare them for Winter culinary use. They will be spiciest if cut just before their flowers open.

MANY garden flowers—especially yellow and white—may be dried in natural form and color by burying them carefully in borax for three weeks at ordinary room temperature.

SNOWBERRY, *Symphoricarpos albus* and its varieties, do not like too much sun. For best results give them partial shade and a fairly steady supply of soil moisture, without sogginess.

DO NOT let late-growing weeds set seeds in areas from which crops have been removed. Chickweed in particular should be fought on such areas between now and Winter. Dig it under or hoe it out.

WATER tomatoes well while the fruits are developing to maintain an even rate of growth. This tends to prevent blossom end rot which is usually caused by a seriously fluctuating water supply.

IF CYCLAMEN corms have been saved, they should be repotted now. Put them in new soil and after repotting let the pots remain in a shaded place outdoors until the approach of frosty weather.

THE FLOWERS of *Salvia pitcheri* (often grown under the name of *S. azurea grandiflora*) will show off much better if the plants are put on top of a bank or wall where their weak stems will flop forward.

CHICKWEED can be eliminated from lawns by several careful applications of powdered chickweed exterminators. These are usually most effective on dry sunny days. In many cases the lawn grasses will appear burned but will come back better than ever.

WHEN cutting lilies, be careful not to take too much stem with the bloom. The plants need all the foliage possible to ripen their bulbs. Also do not jerk up withered stems in such a manner as to leave holes which may collect water and induce rotting in the bulbs beneath.

WHILE many chrysanthemums can be brought into flower earlier by artificial shortening of the Summer day, shading after bud formation will delay the opening of the flowers. Hence, any protection planned to avoid damage to buds of outdoor chrysanthemums by early frost should permit all the light possible during the full length of every day.

MOST of the evergreens can be transplanted successfully now. If rain has been scarce and the soil has been very dry, be sure to water the plants thoroughly a day or two in advance of moving. If received from the nursery with the soil ball dry, put them in a protected place over night and water the soil ball thoroughly. Let all free water drain away so that the balls will be firm and not muddy when planted.

ALGÆ in pools and ponds may be killed without danger to the fish by dissolving copper sulfate (blue vitriol) at the rate of one pound to a million gallons of water. (A cubic foot contains seven and one-half gallons.) Place the right amount of copper sulfate in a cloth bag and troll the bag rapidly over the surface area of the pool until the chemical is completely dissolved. Since the chemical will sink in water, even distribution is essential.

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The Joy Morton estate, where the Garden Club of Illinois will put on its 1942 Spring Flower Show.

Entrance to the famous Morton Arboretum.

VISITORS to the annual Spring Flower Show of the Garden Club of Illinois in 1942 will have an opportunity to see a splendid private estate and the famous Morton Arboretum, as well as a great floral exhibition. Mrs. Joseph M. Cudahy, on whose estate the show will be held, is the daughter of the late Joy Morton who founded the Morton Arboretum, which adjoins the estate of Mrs. Cudahy. Mrs. Cudahy's grandfather, J. Sterling Morton, was Secretary of Agriculture under President Grover Cleveland. It was he who was responsible for the establishment of Arbor Day in the United States.

AUGUST 15, 1941 VOL. XIX. NO. 16

HORTICULTURE

Better Gardens Make Better Homes

HORTICULTURAL NEWS-LETTER

Illinois to Have Two Great Spring Shows

ILLINOIS will find itself confronted with an unusual situation next Spring, for instead of one flower show it will have two. For eleven years the Garden Club of Illinois has held a great Spring exhibition at the Navy Pier in Chicago, most of the profits being used for the Lincoln Memorial Garden in Springfield. It has just been announced, however, that the Navy Pier is being taken over by the government as a defense measure and that all civil activities will be barred. As a matter of fact, the situation had become complicated, even before this decision was given out by the government, an announcement having been made by the Society of American Florists and Ornamental Horticulturists that it was planning a Spring flower show on a large scale to be held at the International Amphitheater, with the co-operation of florists, nurserymen and other allied interests. The dates set for this exhibition are March 20 to 28. It has been customary in the past for this society to hold its Spring shows in a different city each year in the hope that this action would serve to increase the number of permanent Spring shows in different parts of the country. Usually the shows have been put on in cities where similar shows had not become established institutions. It is quite possible that the Society of American Florists will put on a show in Chicago each year, while still co-operating in the staging of similar shows in other large centers of population.

It seemed for a time that this year's show at the stockyards might be the only Spring exhibition in Chicago because of the government's action in relation to the Navy Pier. However, the backers of the long established garden club exhibition have met their problem in an unusual and unexpected way. They have just announced that the Garden Club of Illinois will hold its 16th Annual Spring Flower Show, May 15, 16, 17 and 18, on the estate of the late Joy Morton, which adjoins the Morton Arboretum on State Highway 53, a mile north of Lisle, which is near Chicago.

This show was made possible when Mrs. Joseph M. Cudahy, a member of the executive committee of the Chicago Flower Show for many years, made the offer, which has just been accepted, to permit the holding of the show along the driveway of the great estate, which was developed by her father. This driveway is half a mile long and is lined with magnificent trees. The gardens of the member clubs and of the co-operating horticultural societies will be planted in the bays formed by these trees, and the specimens and flower arrangement classes will be staged in tents. Floodlights at night will make the grounds almost as bright as at mid-day, and it seems probable that this new venture may lead to a series of exhibitions as notable as those of the great Chelsea show in England which, likewise, is held in tents. It is certain that the exhibition will attract great numbers of visitors from other sections as well as from Chicago.

Mrs. O. W. Dynes, whose work as general chairman has been responsible for the continued success of the Chicago show will act in the same capacity next year. Her committee includes: Mrs. Joseph M. Cudahy; Mrs. Mark Cresap, Kenilworth Garden Club; Mrs. J. Cameron Aspley, Glencoe Garden Club; Mrs. Charles R. Walgreen; Mrs. L. T. Warren, Elmhurst Garden Club; Mrs. G. McStay Jackson, Lake Bluff Garden Club; Mrs. Raymond Knotts, Berwyn Garden Club; Mrs. W. L. Karcher, Freeport Garden Club; Mrs. George Plamondon, Wheaton Garden Club; Mrs. John T. Pirie, Lake Forest Garden Club; Mrs. George M. Kendall, Glen Ellyn Garden Club; Mrs. M. Johnson-Fuller, Riverside Garden Club; Mrs. Howard Countryman, Rockford Garden Club; Mrs. J. Wilson McAllister, Kenilworth Home and Garden Club; and Mrs. George Parker, Winnetka Garden Club. Mrs. Warren Shoemaker, of the Winnetka Garden Club, is the president of the state federation.

The Pennsylvania Horticultural Society

The Pennsylvania Horticultural Society will begin its Autumn activities with a Chrysanthemum Show in the Field House of Swarthmore College, in Swarthmore, on Friday, Saturday and Sunday, November 7, 8, and 9.

The society is fortunate in again having the co-operation of the Philadelphia Branch of the National Association of Gardeners and the Arthur Hoyt Scott Horticultural Foundation, the organizations which helped much in presenting last year's interesting exhibition. There will be no entry fee and no admission charge.

The society has authorized the Field Secretary, Miss Anne B. Wertsner, to go to Texas for a few weeks in October to give a series of gardening talks at the invitation of the Texas Federation of Garden Clubs.

Miss Wertsner gave a similar series earlier in the year in Oklahoma

1942 Spring Flower Shows

St. Louis, Mo., March 14 to 22
Greater St. Louis Flower and Garden Show, in the Arena

Boston, Mass., March 16 to 21
New England Spring Flower Show, in Mechanics Building

Chicago, Ill., March 15 to 22
National Flower Show, in the International Amphitheater

New York, N. Y., March 16 to 21
International Flower Show, in the Grand Central Palace

Philadelphia, Pa., March 16 to 21
Philadelphia Flower Show, in the Commercial Museum

Detroit, Mich., March 21 to 29
Michigan Flower and Garden Exhibition in the Convention Hall

Lisle, Ill., May 15 to 18
Garden Show of the Garden Clubs of Illinois on the estate of the late Joy Morton.

Oakland, Cal., April 28 to May 3
California Spring Garden Show, in the Exposition Building

and Texas, and the course proved so successful that she has been asked to return.

Members will have an opportunity to attend a series of practical gardening talks the coming Winter. The lectures will be presented by the field secretary and will start in November. Programs will be mailed to members in due course.

Much Damage by Elm Leaf Beetles

Brown elms, leafless elms, dead branches and dying or dead elms may be seen in hundreds of communities in the northeastern states. The many thousands, possibly millions of elms, showing these conditions have been damaged mostly by the elm leaf beetle. They show in the order given above the results of severe and repeated attacks by this elm pest. The brown and leafless elms are the first stages in what result in the destruction of large numbers of magnificent trees. Next one sees dying limbs in the tops of large elms and about this time some of the weaker trees are dead, forerunners of the fate of others, possibly many, if the elms are not protected. The stripping means destruction of the breathing and assimilating organs of the trees. The result is partial suffocation and malnutrition with an end product of many dead or unsightly trees. Elms in early August should have an abundant green foliage approximating that of other trees.

There are many cities and villages in New York and New England which have learned how to keep elms green and vigorous throughout the Summer. Some spray their trees and fail to get the desired results because an essential factor has been overlooked. Browned and leafless elms in early August are signs of poor spraying from one cause or another.

New Show in Greater New York

The Ninth District of New York's Federation of Garden Clubs includes some 45 clubs. Heretofore they have been content to cooperate with all the large shows in the metropolitan region and have never sponsored an entire show of their own. This year, however, the clubs of Bronx, New York, Westchester and Putnam counties are to stage a Fall show, October 1 and 2, at "Hi Esmara," the magnificent estate of Mr. and Mrs. Edward Manville, at Pleasantville, Westchester Co., N. Y.

The setting will be the stables, courtyard and barn on the estate and the show will play up both the Fall season and the farm atmosphere. One barn has 12 large box stalls, each 11 x 13 feet and here the clubs plan to feature their finest talent. There are no restrictions. A club agrees to take a stall and may then plan any exhibit in which it is interested as the stalls will have no common objective, each will be pointed against perfection in its own type.

The rest of the show will be made up of classes for outdoor tables, miniature arrangements, tea wagons and harvest cars. Commercial exhibits, horticultural displays and gardens will occupy the court and the adjacent barn. The net proceeds of the 50-cent admission charge will be divided among war charities.

Pleasantville lies on one branch of Westchester's fine parkway system and "Hi Esmara" is about a mile North on Route 117.

Coming Gladiolus Show in Boston

The 22nd annual exhibition of the New England Gladiolus Society, Inc., will be held at Horticultural Hall, Boston, on August 20 and 21, in co-operation with the Massachusetts Horticultural Society and the Massachusetts State Department of Agriculture.

All the important large growers in New England have engaged display space and many long distance air shipments are expected from as far away as British Columbia, California, Utah, Minnesota, Wisconsin, Manitoba and upper New York State.

There will be a 15-minute period of audible judging at 3 p.m. on both days. Mrs. Anson Howe Smith will be in charge on August 20, and Mrs. John Franklin Brown on August 21.

Marigold Show in Florida

The Horticulture Committee of the Tampa Federation of Garden Clubs sponsored its second annual Marigold Exhibit recently. It was open to the public. Sixty-four varieties of marigolds were grown by the members of the 28 circles from seeds donated by one of the large seed growers. The marigolds exhibited were properly classified which made identification comparatively easy and enabled the small gardeners to select those varieties best suited to their purposes and desires. The hostesses were dressed in old-fashioned costumes.

New British-American Hybrid Corn

Among the exhibits of the Agricultural Experiment Station at New Haven, Conn., at the annual field day, August 20, will be the new British-American hybrid sweet corn listed as Morton. This is the first hybrid corn developed in England and it has a Connecticut inbred as one parent. Seed was sent to the experiment station in April, planted in May, and a row of sturdy British corn has grown up. It is extra early and well adapted to Connecticut growing conditions.

The field day will be held at the station's 30-acre farm at Mount Carmel throughout the day on August 20. The public is invited to see exhibits, demonstrations and experiments of field, orchard, lawn and garden, and to attend the tent meeting at 1:15.

Junior Flower Show in New York

The seventh annual Junior Fall Flower Show sponsored by the Junior Garden Club council of the *New York Herald Tribune* in co-operation with John Wanamaker's of New York will be held August 27 and 28 in the John Wanamaker Auditorium and will be open to the public. The hours will be from 3:30 until 9:00 p.m. on the first day and from 9:30 a.m. until 5:00 p.m. on the second day. In all, about 25,000 girls and boys are registered with the council through their local garden clubs, which cover an area within a radius of 50 miles outside New York City.

Men's Flower Show in Illinois

The fifth annual Fall Flower Show of the Men's Garden Club of Villa Park, Ill., will be held September 6 to 8 inclusive in the Ardmore School gymnasium at Harvard and School Streets. Mr. G. L. Pierce is chairman in charge of the show.

IMPORTANT COMING EVENTS

Aug. 19. Dublin, N. H. Flower Arrangement Show of the Dublin Garden Club at "Robinwood."

Aug. 19-21. Detroit, Mich. Thirty-first Annual Convention of the National Association of Gardeners at the Book-Cadillac Hotel.

Aug. 20. Bryant Pond, Me. Flower Show of the Bryant Pond Garden Club.

Aug. 20. Ellsworth, Me. Flower Show of the Ellsworth Garden Club.

Aug. 20-21. Boston, Mass. Annual Exhibition of the New England Gladiolus Society at Horticultural Hall.

Aug. 21. Worcester, Mass. Display of Garden Flowers by the Worcester County Horticultural Society at Horticultural Hall.

Aug. 22-29. Toronto, Ont., Canada. Annual Show of the Canadian Gladiolus Society at the Canadian National Exhibition.

Aug. 23-24. Inglewood, Cal. Tenth Annual Flower Show of the Inglewood Dahlia and Floral Society and the Annual Convention of the American Begonia Society.

Aug. 23-24. San Leandro, Cal. San Leandro Dahlia Show.

Aug. 26-29. Washington, D. C. Seventeenth National Shade Tree Conference with headquarters at the Mayflower Hotel.

Aug. 27-28. New York, N. Y. Seventh Annual Junior Fall Flower Show of the Junior Garden Club Council of the *New York Herald Tribune* in co-operation with John Wanamaker's in the Wanamaker auditorium.

Aug. 27-28. Winslow, Me. Flower Show of the Central Maine Garden Club.

Aug. 28. Worcester, Mass. Display of Lilies by the Worcester County Horticultural Society at Horticultural Hall.

Aug. 28-29. Boston, Mass. Exhibition of the Products of Children's Gardens by the Massachusetts Horticultural Society at Horticultural Hall.

Aug. 28-Sept. 1. Pittsburgh, Pa. Flower Show in connection with the ninth Annual Allegheny County Free Fair.

Aug. 31-Sept. 2. Healdsburg, Cal. Healdsburg Harvest Festival.

AUTUMN PLANTING OF EVERGREENS—

A highly successful practice which is growing in favor

BECAUSE of the rather heavy losses as a result of the November 1940 freeze considerable replacement plantings of evergreens will be in evidence this Fall. It is well, then, to look to proper planting technique as the sad experiences of last Fall have proved that many of the losses were due to improper care and planting methods.

Some of the more common forms of evergreens which have been successfully grown even in the eastern Kansas limestone region which is severe and dry are: chinensis, virginiana and scopulorum junipers, both upright and creeper forms; Austrian, Scotch, mugho, ponderosa and white pines; most Oriental arborvitæ; Norway spruce, Colorado blue spruce and bald cypress. There have also been reasonably successful plantings made with hemlock, American arborvitæ, Douglas fir, white fir and certain yews planted on well-protected sites.

The most desirable planting seasons for evergreens in many states are March 15 to April 15 and September 15 to November 1. Fall planting of evergreens in this section is generally more favorable for various reasons, most important of which is that the plants are in a more nearly dormant condition in the early Fall.

When the trees arrive from the nursery, if not freshly dug and in a moist condition, submerge the burlapped root-balls in a tub of water for about 15 minutes and place them in a cool, dark place until ready for planting. Evergreens are always supplied balled and burlapped, because drying out of the roots is usually fatal, which is not true of some deciduous nursery stock.

Never lift evergreens by the tops or the boles, nor disturb or loosen the stems or roots. Carry the trees by the ropes on the balls or, better yet, lift the entire balls and avoid whipping the tops when carrying.

The tree holes may be dug wholly or partially in advance. It is often best to dig the holes at least a day before planting to allow a thorough watering-in of the holes and the surrounding earth. There should never be any free water standing in the holes when planting. Excavate so that the holes are at least one foot larger in diameter than the root balls.

After the hole is dug break up the hard subsoil and loosen it with a pick or bar to a depth of about ten inches below the excavation depth or punch numerous deep holes. Place clean sand in these holes to a depth of two inches over the bottom of the excavation.

If very well decomposed animal fertilizer is available, two or three inches of it may be placed over the sand but never use green manure on evergreens nor let any manure come into close contact with the roots. This is important because evergreen roots are very sensitive to injury by carbon dioxide gas which is generated by undecomposed manure or by a lack of proper drainage in the soil if the amount used is too great. Also, it is important as a protective measure that there be at least six inches of soil between the manure and the roots.

A desirable soil mixture for filling-in should contain about one-fourth to one-third peat moss. A little leaf mold, if available, is also useful. All soil and ingredients should be well pulverized or screened before using.

The trees should be set into place with the balls still wrapped in burlap and as deep or one inch deeper than they were in the nursery but never any deeper. Before starting to fill up the holes pack the soil mixture very firmly about the lower roots by pushing and tamping it around the bottom edges of the root balls. Then, fill in with the soil mixture to about two-thirds of the total depth on small trees or about eight inches from the ground level on larger trees. Keep the trees straight. Tamp well as filling progresses and when at the above depth, water thoroughly. Do not attempt to tamp the soil after applying water and never tamp or step on top of the balls.

Next, cut the top ropes from the balls, loosen any balling nails present, carefully peel back the burlap and press it into the soil. There should never be any burlap closer than six inches from the top of the ground, as burlap left protruding from the soil serves as a wick to draw moisture up to the surface when the ground starts to dry out.

On the outer edges of the partially filled holes apply a sprinkling of complete fertilizer about three or four inches wide. In using most commercial fertilizers, an application of one and one-half pounds per inch of diameter measured about four feet above the ground is about right for evergreens. Use one-half pound for each foot of foliage spread of the creeper types. Cover and pack lightly these outer rings of fertilizer with a sprinkling of soil to prevent their spreading and to keep them at a safe distance from the roots.

The remainder of the excavations should be filled with the same mixture as the lower portion. It is often desirable, however, to add a little more peat moss to the surface portion of the fill. Tamp and pack the soil mixture lightly. Large cup-shaped depressions should then be formed at the bases of the trees and extend slightly beyond the original excavations. These depressions should be considerably higher on the edges away from the trees. Also, they should set about an inch or two above the normal level to allow for settling.

Next, water lightly without washing and wait about 24 hours before further watering-in and packing down. This latter watering which is more effective should be made with a hard-driven spray and the cup depressions completely saturated. In hot southern exposures or dry sites, an inch or two of peat moss is beneficial as a mulch and is best applied after watering-in and thus lightly settled into the soil.

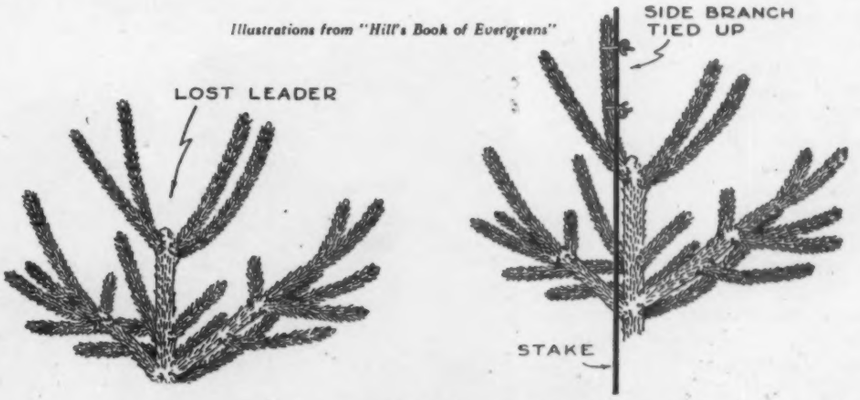
If the weather is not too hot nor the sun too bright, evergreen foliage should be sprayed every day for about two weeks after planting. This helps reduce the rapid transpiration loss from the foliage of the plants. Do not attempt to water the soil around the trees too much when doing this spraying, as it is not needed.

Be careful not to give an overdose of commercial fertilizer to your evergreens. It is best to follow the instructions issued by the manufacturers. A ratio of 10-8-6 or 10-6-4 has been found very satisfactory in this part of Kansas. This varies, however, with the locality and the type of soil.

Water evergreens again a few days after planting and once or twice weekly if needed until growth is well under way. This applies most to Spring plantings but varies considerably with local conditions. In Fall plantings not so much water is required and once weekly during Autumn drought periods is sufficient until cold weather sets in. A heavy watering should be applied just preceding the first hard freeze in early Winter and before Winter mulching but it is best not to apply any water after this mulch has been applied.

During the dry portions of the Summer and well into September newly planted evergreens should be watered weekly to the point of soil saturation. They should be watched carefully the first two years after transplant-

Illustrations from "Hill's Book of Evergreens"



Leaders often are broken off by birds which swing on them. A new leader may be developed by the method illustrated.

ing and never allowed to undergo extreme drought without supplemental watering. Use a good Summer mulch of leaf mold or similar material and water carefully so that the mulch is kept intact. Light applications of fully decomposed animal fertilizers are desirable when mixed into the mulch. Do not under any circumstances use green manure or any manure too heavily.

Commercial fertilizers are useful as follow-up feedings for two or three years following transplanting especially in poor soil. As a rule, one application in early Spring is adequate. Apply the fertilizer at the outer edges of the foliage lines as in planting. On larger specimen trees use a soil auger with deep feeding to get best results. This also applies to trees with a heavy growth of foliage.

Evergreens should not be watered in direct sunlight by spraying during the bright sunny days of mid-Summer. An occasional spraying of the foliage should be made, however, in early evening during hot weather. Watering in this manner washes off the dust and the red spiders common to evergreen plants. Apply the water under pressure for best results.

When evergreens are moved a ball of earth containing the roots should always be confined by tying burlap around them. Water should be given in abundance.

It is likewise important that mulches be applied the first Winter after transplanting, applying them after freezing weather sets in and well after the trees have been planted and settled. The mulch should be several inches in depth and applied far enough out to cover all the root area. Dry leaves, hay or straw are satisfactory. Weight the material down with a light sprinkling of soil to prevent its blowing away. Remove this mulch in the Spring as soon as the frost leaves the ground and check the Summer mulch at this time, cultivating it in or renewing it.

—G. M. Fisher.
—W. D. Durell.

Lawrence, Kan.

CLIMBING ROSES FROM MANY ANGLES

THERE are more ways in which to use climbing roses than to put them on posts, pillars or banks and let them grow as they will. Some sorts are very effective when trained espalier-like and fastened fan-wise on a wall.

For this use one needs climbers that bloom well but are not rampant growers, particularly those which make short new growths on the old wood and do not make biennial canes as do the ramblers. Furthermore, it is advisable to use the varieties hardy in one's region without special Winter covering. For, while it is possible to cover the plants with burlap, the effect is not ornamental and to take the plants down from the wall and bury them in the soil is too much of a task and not pleasant for the plant.

In mild climates the climbing hybrid teas of less robust growth may be used but most hybrid tea climbers get out of bounds when not killed back by the Winters. Even the very robust sorts of bush hybrid teas can be trained to become as high as a wall. In northern gardens there are a few climbing hybrid perpetuals such as Nubian (red), Ards Rover (crimson), Lucy Thomas (rose) and Climbing Frau Karl Druschki (white). These bloom well in June only. Some of the robust bush hybrid perpetuals may also be trained horizontally on a wall. The two hardy yellow climbers, Star of Persia and Le Rêve, have a brief period of yellow in early June.

Still better are some of the less rampant Brownell climbers, Dr. Burt, Carpet of Gold, Copper Glow, Harvest Glow and Golden Orange Climber which give various yellow hybrid tea-like flowers in late June and July.

Unfortunately, only three hardy everblooming climbers are yet known, suited for this purpose. Creeping Everbloom is a sort of climbing General Jacqueminot (red), not very tall, and New Dawn is a pink Dr. Van Fleet in robust everblooming form, while Birdie Blye is deep rose.

Some of our climbing roses, in favorable climates, make giant plants. It is simply hopeless to try to keep Silver Moon to the bulk of the usual climbing rose. It keeps making new growths high up on the plant, rarely breaking anew at the base, and in time the base of the trunk becomes like a tree in size. This is very different from the biennial growth of the ramblers.

In lands of little frost nature seems particularly pleased with this type of climbing rose. There is the banksia rose in yellow and white, the Cherokee in several forms, Macartney and its child Mermaid, the climbing teas and particularly the forms of giant tea rose, and the very robust growers among the climbing hybrid teas. There are plenty of good roses rising to a height of 20 feet or more where Winters are mild.

In northern lands there are giant climbers but they bloom only once. American Pillar, with its clusters of wild-rose blossoms, seems to have no limits to its ultimate size. Silver Moon is equalled in bulk by Miss Flora Mitten (single, pale pink), Maxime Corbon (small, double coppery yellow) and three giants of the Brownell group, Golden Pyramid (semi-double, yellow), Elegance (double, light yellow) and Moon Glow (double, pale yellow).

Unfortunately, however, most of our climbing roses do not have a very pronounced fragrance but often have the odor of the garden roses in dilute form. The climbing hybrid teas, nevertheless, often have the fragrance of the bush hybrid teas evident at close inspection.

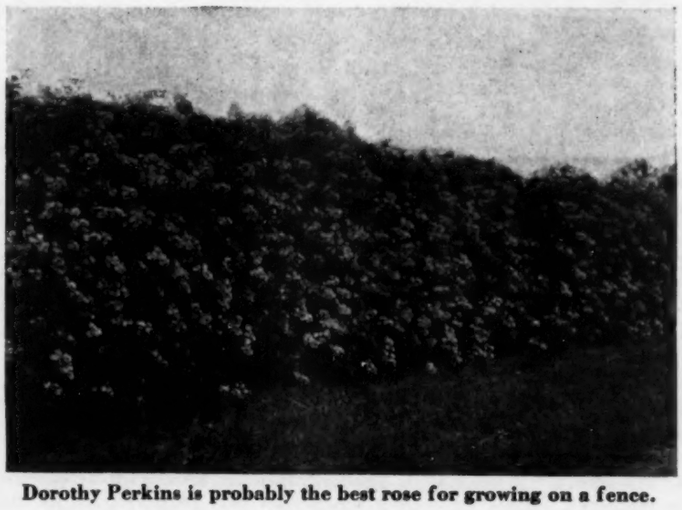
Perhaps the most strongly-scented of all the climbing roses is the Walsh rambler, Nokomis. This little-known rose grows like all the robust ramblers, with great quantities of flowers in early July. The flower is slightly larger than that of Dorothy Perkins, of a similar rose-pink, very double, fading slightly to old-rose and the petals drop more completely than on some ramblers. Most unusual is its heavy fragrance, like that of the native wild roses, very spicy near the plant and carried on the wind for a long distance. It is easily found by the nose alone in a hedge of mixed ramblers.

While different from the fragrance of the sweetbrier, it has the same penetrating quality and like the lilac or lily-of-the-valley it will cast often a heavy scent over the whole garden.

Those who like the odor of a field of wild roses would do well to try a plant of Nokomis close to the house.

—Stephen F. Hamblin.

Lexington (Mass.)
Botanic Garden.



Dorothy Perkins is probably the best rose for growing on a fence.

"Come into the garden, Maud!
Be charitable toward what you see,
For the garden we make is never
The garden we'd like it to be—
But NEXT *year—that's just what keeps us all*
At our gardening, you and me."

Rambling Observations of a Roving Gardener

AS THE needs of national defense—both military and industrial — draw more heavily upon the nation's man power, the need for the participation by women in the workaday world increases. This is true in every war, in every country and, to a great extent, in every form of civilian activity.

Agriculture is no exception, as is again being proved in various parts of Europe at the moment. Even in the United States, there are those who, thinking in terms of grim possibility, are now arranging for the recruiting of a woman's land army to help keep food production at normal levels.

From various informed quarters come reports that there is an increased demand for training on the part of women anxious to learn agricultural technique. To meet this demand, various institutions are now organizing additional training courses.

BUT those women who may subject themselves to training with the hope of finding careers as paid workers in agriculture are likely to discover that theirs is a limited field of endeavor. They will discover that that former American institution, the hired man, has not gone from the farm solely in response to the call of national defense. In many instances he has been driven off by changed methods and improved machinery, to say nothing of lower income than that available in industry. The greatest field of usefulness for well trained women in agriculture would seem to be as owners of farm property. Numerous women who have in the past studied agricultural subjects are now managing their own farms with a high degree of success. These, however, have found that it is a far call from romantic thoughts about "the good earth" to the hard-boiled practice of making their places pay.

IT APPEARS that the School of Horticulture for Women, at Ambler, Pa., is the first to recognize the situation I have been discussing; for it offers a new two-year course in agriculture. The new course includes work in the closely allied sciences such as chemistry, soils, entomology, and farm biology, as well as intensive courses in animal husbandry, animal hygiene, farm management, fruit growing, vegetable gardening, farm crops, poultry and beekeeping. The 75-acre farm which is owned by the school serves as a laboratory.

One of the most attractive features of the farm group at this school of horticulture is the fine old Pennsylvania Dutch barn, typical of the barns built in the pre-revolutionary era. With its dignified proportions, its fine stone gable end, and its massive oak beams, it has great architectural charm.

I AM told that many of the students who have, in the past, taken work in agricultural subjects at the school of horticulture are now successfully managing their own farms. Others have obtained positions as farm managers on private estates or in institutions, and there is a growing demand for well trained women. One graduate has been farm superintendent for the past 16 years at an Industrial School for Girls near Richmond, Va., and many similar positions are being held by graduates.

A LETTER from Mrs. C. A. Biebler, of Milwaukee, called my attention to the fact that the present earthworm controversy is another of those debatable subjects which are given a thorough public airing at least once in every century. As Mrs. Biebler points out, the Reverend Gilbert White stated his case for the earthworm in one of the letters included in his book, "The Natural History of Selborne," written way back in 1788 in Hampshire in England.

It so happens that my copy of this well known old book is not a first edition but was published in 1853, after being edited and annotated by Sir William Jardine. Since the editor added some of his own ideas in footnotes, it seems quite worth while to quote both from the text and the editor's notes.

In defense of the earthworm, Gilbert White, who attributed the unsatisfactory cultural conditions in often flooded meadows to the drowning of the worms, went on to say this:

Earthworms, though in appearance a small and despicable link in the chain of Nature, yet if lost, would make a lamentable chasm. For to say nothing of half the birds and some quadrupeds which are almost entirely supported by them, worms seem to be the great promoters of vegetation which would proceed but lamely without them, by boring, perforating and loosening and rendering it pervious to rains and the fibres of plants, by drawing straws and stalks of leaves and twigs into it: and, most of all, by throwing up such infinite numbers of lumps of earth called worm-casts, which, being their excrement, is a fine manure for grain and grass. Worms probably provide for new soils for hills and slopes where the rain washes the earth away; and they affect slopes, probably to avoid being flooded. Gardeners and farmers express their detestation of worms; the former because they render their walks unsightly and make them much work; and the latter because, as they think, worms eat their green corn. But these men would find that the earth without worms would soon become cold, hard-bound, and void of fermentation, and consequently steril.

In his footnote comment, Sir William Jardine has this to say in posthumous argument with the author:

That worms are great fertilizers there can be no doubt, but at the same time in all cases they are not beneficial, as for instance, in flower-pots or boxes where plants are kept. In pasture lands, however, they do act mechanically and their castings or excrement (earthworm guano) is often very abundant, so much so as to mark the surface.

Thus, it may be seen that there is nothing new in the current discussion of earthworms, unless it be the idea that large sums of money spent in generously fostering their increase will cause all other cultural problems to fade away.

I DISCOVERED in Salt Lake City what was to me a new job in horticulture when I found that my friend Clay Allred of the state road commission had received an appointment as landscape architect for Hill Field, the new military landing field of 3200 acres on the sandy mesa of the Weber Delta a few miles south of Ogden. Officially, this is the training school of the Ogden air depot. He is not a custodian but a professional civilian employee, possibly the first to be employed by the army air service. His problem is mainly fighting against erosion. He must also maintain six miles of runways, 11 permanent gardens and windbreaks with a general problem of compositional enframement.

The sand's erosion he is fighting with Winter rye and alfalfa, *Medicago sativa*. Eventually, he plans to cover the field with Indian rice grass, sand drop seed and other coverings which his knowledge of range ecology fits him to select. To outline his 11 garden areas of perennials he plans to use permanent hedges but this year he is forced to use such substitutes as sorghum, castor beans and giant sunflowers. This puts some green in the desert atmosphere which is certainly welcome in a field situated between the barren Wasatch Mountains and the African looking islands of the Great Salt Lake.

Mr. Allred has had admirable preparation for his work in his state plantings along Utah highways. These plantings range from willows and Lombardy poplars to Russian olives and ailanthus, the last of which was brought from Ohio by early settlers in the middle of the last century and planted especially to please early chair makers. One can see groves of it all around the last villages before he enters Zion Canyon. It is not surprising that many landscape architects are watching with interest Mr. Allred's work.

Students harvesting apples at the School of Horticulture for Women in Ambler, Pa.

THE VEGETABLE GARDEN

Useful Garden Tools

IF ONE is growing vegetables, a wheel hoe of some kind is of great value. It need not be an expensive tool or one with elaborate accessories. If the garden is naturally rough or filled with stones a hoe having a large wheel will give greater satisfaction than one with a small wheel, although the small kinds are more common. Market gardeners use wheel hoes with two wheels so they may straddle the rows. This type is rather hard to handle, however, and that with a single wheel is recommended for the amateur.

Most devices of this kind have two sets of cultivators. One is made up of prongs which stir the ground rather deeply and the other has flat blades which move around just under the surface, cutting off the weeds and stirring the ground without danger of disturbing the roots of the young plants. These blade attachments must be used carefully, however, for there is some danger that they will cut off the plants themselves.

There is a distinct advantage to having a plow attachment. With such a device furrows can be opened for corn, beans and similar crops and the seed can also be covered by means of the plow. There are few garden tools for which the amateur will find greater use or which will save him more backaching labor, especially in land which is not very smooth and in which rocks abound.

A few dollars spent for the more common type of combination wheel hoe and plow will prove one of the best investments which the amateur gardener can make. With them much of his work can be done with a minimum of effort and a great saving in time.

In a small plot a Warren hoe is a more useful tool. This hoe has a triangular shaped blade, the point of which can be used to open small furrows. With the blade reversed the furrows can be covered, although in actual practice the experienced garden maker is likely to cover the furrow with his foot, compacting the soil lightly with his boot as he does so.

Pressing the soil over the seeds helps to produce quick germination, although it is not advisable to do this when planting beans, the entire seed of which is pushed up through the soil as root growth starts. The Warren hoe is not indispensable, of course. Neither is the very narrow hoe which is sometimes used but both have advantages, particularly when working around small plants. An old, partly worn out hoe of the common type can be cut down to make a triangular hoe or a hoe with a narrow blade.

One other type of hoe which has great merit is the so-called scuffle hoe which consists of a flat blade attached to a long handle in such a manner that it can be worked back and forth just under the surface of the soil.

Most professional gardeners who grow vegetables use tools of this type and a scuffle hoe is particularly recommended to amateurs who do not include a wheel hoe in their garden equipment. By means of a scuffle hoe weeds and grass growing in the rows between vegetable crops can be killed quickly and easily without danger of injuring the roots of the crops. It is possible to get very close to the rows with such a hoe, thus obviating much hand work. Even with a scuffle hoe, however, a certain amount of hand weeding must be done and a mason's trowel is a first-class tool to use when weeding among young plants as well as for transplanting operations.

Four Lesser Vegetables

FLORENCE fennel is sometimes catalogued as finocchio. It has an enlarged leaf stalk which is blanched like that of celery and becomes white and crisp. The flavor is rather sweet and has a slight suggestion of anise.

Leeks are preferred by some people to onions, being very mild and tender. They should be set so deeply that the neck is partly covered. As cultivation proceeds during the Summer a little more earth may be drawn around the plants to blanch them.

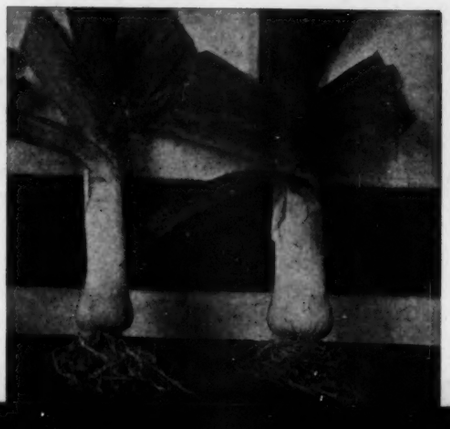
Vegetable marrows merit wider use. They are similar to Summer squashes but have less water.

In the northern and middle states okra is seen only occasionally but in the South it is very common. Okra is the vegetable which figures prominently in chicken gumbo and similar soups. The edible part is the pod. Okra will grow in practically any good garden soil but should not be planted until the ground is warm. The plants grow two feet high or more and only a few plants are needed to give all the pods wanted. These are prepared for Winter use by being hung up in the Fall and allowed to dry but they may be cut into short lengths and added to soups any time during the Summer after they reach a fair size.

Many people are fond of chives, as they add a delicate piquancy to various dishes. Their flavor is somewhat similar to that of onions but is much milder. It is the top of the plant which is used, being chopped fine and added as needed. Chives are perennials and when once started they go on growing for years. Only a very short row is needed but it is well to have a few extra plants which one may dig up and take into the house when Winter comes. Started plants can sometimes be bought from seedmen.

The vegetable marrows have a long season.

Many garden makers prefer leeks to onions.



Cabbage Worms Active

EXPERIMENTS have shown that cabbage worms are fairly easy to control, if dust is used as a preventive. The worst of the four or five caterpillar enemies of these crops are the imported cabbage worm and the cabbage looper. The larva of the cabbage worm is green, with closely-set short hairs. The adult is a white or sulphur-yellow butterfly. The looper is light green, striped lengthwise with light and darker green and it loops as it walks.

In certain seasons these worms injure cabbage and cauliflower plants enough to cut the crop 50 per cent. Therefore, it has been found worth while to dust these crops thoroughly every two weeks beginning soon after plants are set. The best material to use is a one per cent rotenone dust.

Blanching Cauliflower Heads

CERTAIN vegetables need to be tied up for the proper blanching of the heads. This is particularly true as applied to cauliflower. If the work is neglected the sun will burn the heads and cause them to turn brown. Sometimes the leaves are pulled together over the heads and fastened in place with nails, but it is better to use a piece of raffia. Some of the endives also need to be tied up in the same way so that the heads will blanch almost white. Care must always be taken not to do this work when the heads are wet, for if the sun shines soon after the heads will start to decay. Care should also be taken not to bruise the delicate heads or curds, to use the technical name of the cauliflower.

Mulching to Save Labor

IF THE garden maker is very busy, and especially if the season be dry, it is sometimes possible to reduce the amount of cultivation required by young plants and at the same time smother out the weeds by using a mulch of peat moss, lawn clippings, hay or strawy manure. If a litter of this sort is piled around the plants, it will keep the moisture in the ground and prevent the weeds from coming up. This plan is often followed to advantage with bush fruits like currants, gooseberries and raspberries. Mulching paper, which is sometimes used, is held in place between the rows with earth, stones or wire. This paper keeps the ground warm, prevents weed growth and does away with much cultivation.

WHAT TO EXPECT FROM BULBOUS IRISES—

These handsome, worth-while garden subjects have been much misunderstood in the North

THE more easily available of the bulbous irises are divided into three horticultural groupings: Spanish, English and Dutch. These groups are all derived from four—only technically different—species native to the western Mediterranean region. Sometimes type plants or special selections of two of these species, *Iris tingitana* and *I. filifolia*, are seen in cultivation. For the most part, however, long cultivation and frequent crossing have resulted in three groups of varieties entirely of garden origin.

For a long time, it was generally supposed that bulbous irises were not hardy in northern gardens. This belief now is proved to have been unfounded. Writing in a publication of the Massachusetts Agricultural Experiment Station in 1936, Professor Frank A. Waugh states:

> Bulbs are sometimes eaten by rodents, they are subject to other accidents; they sometimes give up this life during the Summer; but in growing these irises outdoors over a period of 30 years, there has never been a single convincing case of loss from Winter freezing. So far as can be determined, iris bulbs are quite as Winter-hardy as Darwin tulips or tiger lilies.

Thirty years of experience in the relatively cold Winter climate of Amherst, Mass., leading to such a fortunate conclusion as to the relative hardiness of the bulbous iris gives positive value to Professor Waugh's cultural recommendations. He sums up his advice on how to grow bulbous irises in northern gardens as follows:

> The bulbs are received from the dealers early in the Fall, about October 1. They should be planted immediately in well-drained soil and in a sunny location. Bulbs should be set four to five inches deep and four inches to one foot apart. They will usually be set in rows, but planting in compact beds is perfectly satisfactory. The bulbs will soon begin to grow and most varieties will send up green spearlike shoots to a height of four or five inches before freezing. This development is apt to cause anxiety to the novice, as it appears to be a sure promise of winter-killing. However, this is the habit of the plants and no harm seems to follow.
>
> It has been the usual, though not invariable, practice to give some Winter protection. Sometimes a straw mulch has been used; but the commoner method, and the one recommended is to wait until the ground is frozen and then to place a few evergreen boughs over the beds. These evergreens will hold the snow and the snow will provide all necessary insulation.
>
> In the books, a dressing of lime has often been recommended for iris bulbs. Though the soil here is normally acid, and though liming has been tried in several instances, no results have been demonstrable.
>
> By July 1, the flowers will be past. Once more the bulbs may be treated like tulips. During the month of July they may be lifted, dried off, the young bulbils separated, and the whole replanted in late September. Or if it is more convenient the bulbs may be left entirely alone where they stand. Some varieties will maintain their place in the garden for several years without any further bother; but most varieties tend to run out under this laissez-faire system.
>
> Since the bulbous irises are especially superb for cutting, and since cutting must always take heavy toll of the foliage, it can hardly be expected that good flowers will be produced by the same bulbs year after year. It will be necessary on this account to keep bringing in young and vigorous bulbs from the natural increase or else to buy fresh bulbs annually. This latter practice is more expensive, but it gives better results.

As seen by the casual eye, the differences between the three major groups of cultivated bulbous irises are not always clear. The Dutch irises are vigorous in growth and usually flower a few days before the various Spanish kinds.

The Spanish irises have narrow, grass-like leaves about a foot high and flower in various colors, principally blue. These flowers appear in June. The English irises have larger leaves than the Spanish and more of them. Here, too, blue is the predominating color in the flowers which appear somewhat later than those of the Spanish varieties. Of the three, the varieties classed as Dutch irises seem to be more vigorous and among them are some of the best garden forms.

Cutting across group lines and selecting varieties on a basis of flower color, it is possible to get a good selection of bulbous iris by choosing the following kinds: For a white variety many growers choose White Excelsior. Among the yellows, Yellow Queen, Cajanus, and King of the Yellows seem to stand out. Among the bronzes it is well to try Bronze Queen, Indian Chief and Prince Henry. From among the many blues and lavenders a reasonably good selection would be Abraham Storck, Imperator, Rembrandt, and W. Zuiderveld. Once started with bulbous iris, however, the avid gardener will, of course, go far beyond this list of suggestions.

Spanish irises are highly ornamental when planted in large groups and are not difficult to grow.

WHAT'S NEW IN GARDENING METHODS?—

A question which is answered by reports from many sections

TO MOST gardeners the term hardiness means the ability of a plant to come safely through Winter after Winter in some part of the North. It is too seldom realized that many plants at home in colder sections may not be Summer hardy, especially in southern gardens. This interesting fact seems to be involved in a recent discussion by Henry B. Chase, Chase, Ala. Mr. Chase suggests trying such plants as *Aronia arbutifolia brilliantissima, Buddleia alternifolia, Lonicera korolkowi* or *Stephanandra incisa* in southern gardens. Still other suggestions by Mr. Chase for warm southern gardens are the shrubby *Viburnum burkwoodi* and the abelia Edward Goucher, as well as the two vines, *Akebia quinata* and *Lonicera heckrotti*. The latter is now being sold under the name of Goldflame honeysuckle.

Mr. Chase also recommends the peppermint stick peach, *Prunus persica versicolor*, which has some flowers red, some white, and others both red and white. In some northern gardens this queer peach has proved itself to be more interesting than beautiful.

Lawns in the Deep South

THE problem of lawns for gardens in the deep South is being studied by Dr. D. G. Sturkie of Alabama. He has found that, as elsewhere, successful lawns in the South result from careful soil preparation, ample feeding and thoughtful selection of grasses.

Dr. Sturkie suggests "centipede" as a lawn grass for dry, sunny places where little feeding is done. As the best grass for the South, however, he lists *Zoysia matrella*, the Manila-grass. The latter, he says, grows well in both wet or dry soils, in either sun or shade. Staying green for a relatively long period, the Manila-grass is easily cared for and can compete effectively with weed growth. A lawn of this promising species, started by sodding, takes two or three seasons to make firm turf.

Pests in the Rose Garden

NO FEWER than 17 insect pests of the garden rose are listed by Dr. E. I. McDaniel of Michigan. Of these she notes five as being most destructive. On the basis of sheer numbers, the aphids, of course, head the limited list but they are easily controlled by contact sprays.

Among the control measures suggested for the other four principal offenders, pyrethrum dust stands out in Dr. McDaniel's recommendations. She says that this dust is effective against even the rose chafer, for which most methods of control avail little.

Pyrethrum dust is also advocated as a preventive of leaf-skeletonization by rose slugs. The slugs may also be controlled by copper rotenone dust faithfully applied. Still another pest, the rose leaf hopper, is discouraged by dusting.

For red spider mite control on roses, Dr. McDaniel advocates spraying with a tablespoonful of glue dissolved in a gallon of water. A variant of this glue treatment is to use two tablespoonfuls of bill poster's paste also dissolved in a gallon of water.

New Way to Control Mildew

WISHING to avoid the work involved in repeated spraying of his roses, Norman C. Brunswig of Chehalis, Wash., has suggested a method for controlling mildew. Writing in the *American Rose Magazine*, Mr. Brunswig says that he feeds each of his rose plants four or five big handfuls of potassium sulphate each year. Then, whenever a speck of mildew appears, he applies dusting sulphur with a hand duster. His advice is not to "attempt to dust all the roses, simply dust the leaves on the plants where the mildew appears." He says that in his experience very little of it appears and what does appear is readily stopped with sulphur. All together, he says that his potash-fed roses (balanced with other fertilizer materials such as superphosphate and cow manure) take about five or ten minutes of his time twice a week during mildew season. In addition to conquering the mildew, he reports that none of his roses have shown black spot in the last four years. Realizing that what works in one locality and soil might not work in another, Mr. Brunswig still thinks that his idea is worth trying anywhere.

Chickweed as a Mulch

WRITING in the recently published year book of the American Delphinium Society, Dr. L. H. Leonian suggests chickweed as a living mulch which in Winter "will form a green mantle on the soil." He goes on to say that no amount of freezing and thawing is going to heave up the precious plants resting under this living blanket. Dr. Leonian points to chickweed as a mulch which does not harbor moles and field mice. He says that the only attention it will need is to remove it to the compost pile in Spring. Even though chickweed does not have any disease or insect enemies, it does, as he states, bloom and thrive throughout the year. It is this latter behavior which will probably restrain many gardeners from trying the experiment which Dr. Leonian suggests.

Troublesome Words

FEW gardeners heed the authorities when it comes to pronouncing the word "anchusa." The five opinions of five dictionaries consulted, when put in print, appear as follows: ăng-ku-să, an-keu'-sah, an-koo'-sa, ang-kū'-să *and* ăn-kū'-să. *They offer no excuse for the most commonly heard* an-choo-sah.

Even so it appears that popular usage will be changed not at all by this information. Most of us—including the author of these lines—will probably go through life mispronouncing anchusa, and liking the hairy, shade tolerant plants of the old world for which it stands.

The most common anchusa is A. azurea (A. italica) *usually represented in gardens under such form names as Dropmore and others. The so-called forget-me-not anchusa really is not an anchusa at all. Its correct name is* Brunnera macrophylla.

Loam Used to Dress Lawns

AFTER study of the commercial "loams" much used for top dressing lawns and filling garden beds, Herbert A. Lunt of the Connecticut Agricultural Experiment Station concludes that it is better to obtain soils which are in good physical condition, even though they may be sour and lacking in plant foods.

True loams and silt loams, he says, are generally better for top dressing. They contain particles of suitable size and enough organic matter to cause them to retain both moisture and fertilizer. Given such loams the acidity correction is easily made after careful soil test. Also, the plant food content can be raised. As regards weed seed content, Mr. Lunt states that "virgin" loam from the woods or soil from a good pasture are both apt to have as few weed seeds as any loam which may be obtained.

New Caterpillar on Barberries

ACCORDING to C. R. Neiswander, of the Ohio Agricultural Experiment Station, two closely related caterpillars native to the Rocky Mountains have suddenly appeared in eastern Ohio as leaf-eating pests of the Japanese barberry. Not known in the East before, these caterpillars have shown themselves capable of defoliating all cultivated forms of *Berberis thunbergi*.

These larvæ started feeding last year in early July and continued gnawing at the edges of the barberry leaves until mid-October. Mr. Neiswander reports that the caterpillars remained concealed during the day in litter beneath the hedge or in dead leaves lodged in the forks of the barberry branches. They left their shelters early in the evening, or during dark, cool days and crawled to the tops of the plants where they fed on the newest growth.

Careful study showed that this new pest of eastern gardens has several natural enemies to limit its population. Also, trials at control by insecticide applications made early in August were apparently successful. Mr. Neiswander's conclusion is that arsenate of lead applied at that time will give effective control. He states that although feeding was observed on untreated plants up until mid-October, those which he had sprayed or dusted in August remained "practically free" for the rest of the growing season.

LOOKING AT THE BETTER DAFFODILS—

Kinds which have been tested in recent years and found to be worthy of recommendation

ALTHOUGH the following narcissi are not new, they are newly available at prices low enough to justify the average gardener in owning a few. They are truly worth-while narcissi and well worth a place in the garden of anyone who desires only the best of these excellent Spring flowers.

Among the large trumpet sorts is Dawson City, one of the best golden yellows in its class. Its perianth is flat and of exactly the same color as the smooth, frilled trumpet. It is a robust grower, although the stems may be a little short. Another long trumpet one is La Vestale, a very early variety whose ivory perianth, creamy yellow trumpet and long stems make an especially attractive flower. Sylvanite is a strong grower of the bicolor type. Its perianth is creamy white, broad and well-formed and its trumpet is a pure light yellow.

No collection of long trumpet varieties is complete without Mrs. R. O. Backhouse, the so-called "pink" daffodil. This is an early bloomer which lasts well throughout the season. Its perianth is white and its trumpet starts off a yellow or apricot, changing to a shell pink as it ages. It is the only narcissus in the lower priced group with this particular characteristic which makes it doubly desirable.

The Incomparabilis group, the cups of which vary from one-third to the length of the perianth segments, has several worthwhile representatives. Abelard is one of the longer lasting varieties. It has a primrose perianth with an exceptionally pretty yellow cup, shading to a clear orange at the edge. Dick Wellband is similar in its lasting qualities but sports a pure white perianth and a brilliant orange cup. This is a strong grower and an excellent exhibition flower.

Franciscus Drake also is an Incomparabilis variety with a creamy white perianth and a golden cup tinged with reddish orange at the fringed edge. Stella Pratt is a robust variety the well-formed perianth of which is primrose, with which the yellow trumpet (shading to orange) makes a pleasing contrast. The long stems make this a good cutting variety. The sturdy Walter Hampden carries flowers with a primrose perianth and a clear yellow cup on long stems. This variety blooms a little later than the others.

Fleur is one of the best of the Barri group of narcissi. Its short, widespread cup of yellow is edged with an intense orange and the white perianth makes an ideal background. Similar to Fleur in the whiteness of its perianth is Actæa, a new Poeticus narcissus, the small yellow cup of which is edged with red. Both of these narcissi were introduced as long ago as 1927, but only recently have been available at popular prices.

The Poetaz group of hybrids has a couple of newcomers worth growing. Glorious is a tall grower with a white perianth and a small yellow cup edged with red. Its relative Scarlet Gem departs from the pure white perianth to light yellow with an orange cup of intense color. Both are fairly good growers.

There are few more graceful daffodils than the Triandus hybrids. Moonshine is one of the best. It has pure white flowers, both cup and perianth, with several blossoms on each stem. These droop slightly to form especially graceful flowers. Moonshine naturalizes well in the shade or in the rock garden.

Lady Hillingdon is a good, early-flowering Jonquilla hybrid, the medium cups of which are an intense yellow with the perianths a shade lighter. This is a strong grower with long stems and long-lasting blooms.

Not everyone likes double narcissi but Mary Copeland is such an unusual flower that it deserves a place in every garden. Its long "petals" (it is hard to distinguish perianth and cup here) are creamy white, while the shorter "petals" are red and yellow giving the appearance of three colors. It is a strong grower and makes a good exhibition flower as well as being useful for border display.

—F. J. Porter, Jr.

Freeport, N. Y.

Dawson City is among the best of the golden-yellow daffodils.

The Cultivation of Daffodils

THE daffodils are most at home in light, well-drained soil which contains plenty of organic material. They will, however, thrive in almost any good garden soil capable of supporting a general line of plants.

Where the soil is suitable, little is required in the way of pre-planting preparations beyond the matter of deep digging. Daffodils, like most other plants, are capable of sending roots out and down to much greater distances than is generally supposed.

In very heavy or very light soils it is sound practice to prepare the daffodil bed well in advance of planting, looking toward a rich well-drained condition.

Advance preparation is especially important when animal manures are being used. Manure applied at planting time should be well-rotted. Even manure substitutes, such as peat moss or leaf mold, will prove more beneficial if incorporated in the soil by planting time. Bone meal as a source of slowly available phosphorus is always helpful in bulb planting.

Once carefully planted, daffodils do not need to be lifted every year. In the cultivated garden they are usually taken up only upon becoming crowded which happens only every three or four years. When naturalized in woodland areas they are usually left undisturbed indefinitely.

For the best results it is essential to plant daffodils early. It is true that they will flower reasonably well if planted in October or even later. However, bulbs which are put back in the ground in late August or early September will become more firmly rooted before Winter sets in.

Mrs. R. G. Backhouse, the so-called "pink daffodil", is early blooming.

Readers' Letters to the Editor

Germinating Lupine Seeds

DEAR EDITOR—In the June 1 issue of *Horticulture* a question is answered concerning the germination of lupine seed. It is the answer that is usually given to most inquiries about this seed but in my experience with lupines I have found that it is not adequate.

A year ago last Fourth of July I gathered some seeds of a wild blue bush lupine which grows in the mountains here. When I planted them in the Fall I tried cutting a notch in them but found it too tedious. I then tried soaking them in cold water over night but without results. I tried soaking them in hot water and planting them in pots. The results were very poor and I found the seeds rotting in the pots. Finally, I tried soaking the seeds in almost boiling water. The next morning a few seeds were swelled so I planted them in sand in pots. I poured more hot water over the seeds that were left and the following morning again picked out the seeds that were swelled and planted them as before. In a week every seed had germinated. As a result, this Spring I have some nice plants four feet high and the same in width with many beautiful flower spikes.

The idea of soaking the seeds in hot water and picking out the swelled ones was given me by a wholesale seed dealer. The idea of planting the seeds in pots in sand was obtained from a dealer in California native seeds and plants.

The propagator at the Santa Ana Botanic Garden told me he soaks lupine seeds in hot water and pours in lye until the seeds start to shrivel. Then he takes them out, washes them at once in clear water and plants them immediately.

The seeds of some California natives require even harsher treatment than that before they will germinate. Argemone, platycerus and *Dendromecon rigida* should be planted in flats of gritty soil and covered one-quarter-inch deep. Then, the flats should be covered with dry weeds and grass which are set on fire. This simulates Nature, as these plants usually come up after a fire has burned off the chaparral.

—J. G. Hootman.

Sierra Madre, Cal.

Answers Columbine Letter

DEAR EDITOR—In reply to Mrs. Jacobs' inquiry about columbines in the July 1 issue of *Horticulture*, I am wondering whether she has tried *Aquilegia reuteri?* Personally, I do not think it has the charm or the lovely tone of *A. pyrenaica* but it is a nice blue columbine. It requires a rather poor gravelly soil, if it is to retain its relatively dwarf stature of about 15 inches but this also applies to a number of other columbines. Even *A. scopulorum* reaches a foot in height if not kept on starvation rations. So, too, does the little pink *A. rubicunda* and the Japanese *A. akitensis.*

On the other hand, I have never seen *A. saximontana* overreach itself and exceed three inches in height and the size of its flower is in proportion to the plant. This is not true of *A. jonesi* as I have seen the latter with a flower as big as the entire plant. The white *A. flabellata nana* is lovely and *A. glandulosa jacunda* is "a thing apart"—when it can be induced to flower well.

I am watching with interest a few seedlings of *A. bertoloni* which is a near relative of *A. pyrenaica* and said to be smaller but it has not yet flowered. There is also the delightful *A. ecalcarata* with tiny and delicate maroon bells. Those who like something "different" might try *A. viridiflora* which has a queer fascination for me with its green and chocolate flowers.

A word of warning to those who grow columbines and, particularly, the dwarfs: It is wise to collect seed annually, for most are short-lived and all seem to be subject to a root borer which attacks the plants after the flowering season is over.

—F. Cleveland Morgan.

Montreal, P. Q., Canada.

Aubrieta or Aubrietia?

DEAR EDITOR—I am amused at the efforts made by the writer on Page 327 of your number of July 15, to deduce the pronunciation au-bree-shee-ah from aubrieta. Of course it cannot be done. Why not, as the first dozen English and American floras on my shelves do, use the common form aubrietia? Then your writer's labored pronunciation follows. He, by the way, treats the aubrietia rather patronizingly: "It *may* have a place in the border or the rock garden thriving *fairly* well in semi-shade."

—James K. Moffitt.

Piedmont, Cal.

EDITOR'S NOTE—*Doubtless many other readers found amusement in this "Troublesome Words" paragraph. It was another instance of too many cooks spoiling the broth. The botanical expert, the horticultural expert and the editor tried to reach a compromise, but succeeded only in compromising themselves.*

Yellow Beach Plums

DEAR EDITOR—At this time of the year suggestions are made as to improving our beach plums as a domestic fruit. So far nothing has been said about the variety with yellow fruits. This form is mentioned by L. H. Rehder with status as *forma flava*, but no data is given as to its range and abundance.

The form with bright yellow fruit is abundant in some places on Cape Cod, the fruits fully as large as of the usual sort, the skin and flesh deep yellow, lacking the sharp or bitter tang of the normal fruit. It is definitely sweeter to taste and more acceptable for eating as a fresh fruit. In fact, the plums are like small hairless apricots. When cooked, the apricot color and flavor are more pronounced, and as jelly or jam the product more resembles apricot or yellow peach than the familiar color and flavor of beach plum.

There are variations in intensity of color and flavor, and further differences may be found in the wild or induced by cultivation. Even the purple fruits vary greatly in size and flavor in the wild, so the development of several distinct forms is possible.

—Stephen F. Hamblin.

Lexington (Mass.) Botanic Garden.

Ground Juniper as a Pest

DEAR EDITOR—As far as I know, no one has ever warned amateurs about the pest which ground juniper (*Juniperus communis depressa*) becomes. It is fine to look at, I grant, I even use it for Winter bouquets, but it is the despair of farmers and county agents as it covers whole pastures in a few years if not fought vigorously. Birds sow it in most unexpected places. It is a nuisance generally so it seems hardly fair to introduce it in new places without giving a real warning.

Hollis Center, Me. —Lucy M. Crockett.

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READERS' QUESTIONS ANSWERED

What vines are available for climbing large masonry walls?

The climbing hydrangea will cover large spaces effectively. It is hardy, deciduous and reveals its rugged stem structure in Winter. The Boston or Japanese ivy is also deciduous. The leaves are a shining green and it climbs very rapidly. The variety *Parthenocissus tricuspidata lowi* is smaller and daintier-leaved than the type. Baltic ivy is evergreen, hardy and attractive.

* * * *

My bearded iris have been in the same spot so long they have stopped flowering but I have no other place to put them. What shall I do?

Dig up the rhizomes and divide them, saving only the most healthy and vigorous-looking ones. Then fertilize the bed well with bone meal and an organic fertilizer before replanting. Thereafter, they should have an annual feeding of either organic or inorganic fertilizer.

* * * *

What can I do to combat the hawkweed, pokeweed and other pests which are completely overrunning my place since the hurricane blew down my pines? There is nothing of value left.

If you are willing to kill out all the other vegetation as well as the pests and will be satisfied with having the area bare most of the season, you can exterminate the weeds with any one of the prepared weed killers now carried by seedsmen but be sure to keep it off your skin and clothes.

* * * *

Is there any fertilizer which will make boxwood grow faster and yet keep its close, bushy growth? What sort of growing conditions does it prefer?

There does not seem to be any fertilizer which will increase the growth and yet keep the plants dense. Boxwood likes a good soil containing plenty of organic matter, good drainage, soil that does not dry out completely, a little shade and protection from the Winter wind.

* * * *

I have tried propagating heucheras from leaf cuttings by putting them in sand as I have seen recommended but only roots grow and no tops. What is the matter?

It is very likely that you took your cuttings without including any buds that could grow. In every case they should have been taken with a "heel" or small piece of the stem from which the leaves sprang attached. In this way the axillary buds are included.

* * * *

What is the name of the maple which has bronzy foliage in the Spring but turns green later?

The tree which you have in mind is probably Schwedler's maple, *Acer platanoides schwedleri*, which is somewhat the color of the purple beach early in the season but later turns green. However, the lower-growing Japanese maple comes in a wide variety of leaves and colors and if the tree is small, it may be one of these.

* * * *

Have you any information on the propagation of the beach plum?

The simplest method is to take roots from an established plant in the Autumn, cut them into sections about three inches long and plant them in a sandy soil in a coldframe. Set them vertically with the root tip end down. Cuttings of sufficient diameter sometimes do equally well if laid horizontally, two or three inches deep. Sizable plants should be formed by late Summer. Set them out in their permanent locations when a year old. For one plant it is possible to dig down, cut off a root and turn the end of the cut-off part up out of the ground.

* * * *

Is there any way to speed up a compost pile to make it decay faster?

A compost pile can be speeded up considerably by the addition of various commercial preparations made for that purpose. These also tend to enrich the compost and make it more or less the equivalent of manure. Decomposition can also be hastened to a certain extent by the addition of nitrate of soda or sulphate of ammonia. When this is done it is often advisable to add some lime to the compost later to counteract any acidity which might be induced. Many feel that the addition of a complete chemical fertilizer not only hastens the decay but also renders the product more valuable as a plant food.

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Autumn Lawn-Making

EARLY Autumn is now becoming accepted as the best time of year for the seeding of lawns. Seeds sown then have the advantage of a Summer-warmed seed bed which is watered by Autumn rains. The young grass plants which appear after early Autumn seeding escape the hazards of broiling sun and searing drought which take their toll of Spring-seeded turf.

Then, too, most of the annual weeds have made their growth by the time Autumn comes around. They are usually not present in the late season in choking numbers. In fact, the hot, dry period of late Summer proves to be an ideal time to check such a weed growth in anticipation of the coming lawn seeding. All of these things being true, turf which gets well rooted this Autumn has an excellent opportunity to become dense enough to prevent free weed growth next year.

The basis of good lawns lies beneath the surface of the soils in which they grow. Turf grasses thrive where drainage is good provided the soil contains plenty of organic material. These materials—manure or accepted manure substitutes—improve the structure of the soil particles. Thus, free water runs away but enough water is retained to make for a thrifty growth.

Commercial fertilizers need to be added in most cases. For Autumn use, some experts suggest formulas which do not contain too much nitrogen and potash but are relatively high in phosphoric acid—the element represented by the middle figure of the fertilizer formulas.

Added elements, either organic or inorganic, need not be worked in to depths greater than a very few inches where the existing soil is relatively deep. The latter should, however, be well dug or plowed in advance of surface treatment. One thing to avoid is the hauling in of indifferent loams which may contain little organic matter and much in the way of weed seed.

Another treatment made necessary in some areas by the presence of soil-borne grubs is the raking in of arsenate of lead. The standard recommendation is ten pounds per 1,000 square feet.

As in all lawn sowing, the Autumn seed bed must be firm and its surface carefully pulverized. Even sowing results from dividing the allotted portion of seed into two equal parts, scattering one at right angles to the other. Viable seed, as weed-free as possible, is the only kind to use. Sowing should be followed by light raking and rolling.

One exception to the practice of Autumn sowing, in the minds of many experts, is the seeding of areas which lie in heavy shade. Evidence has been put forward to show that shady spots present somewhat different problems, and are best sown to turf grasses in the Spring.

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—Elbert Hubbard.

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LOOKING AT THE NEW GARDEN BOOKS

Delphinium Society's Year Book

"Delphinium," the Year Book of the American Delphinium Society for 1940, edited by Ruth Mosher Place and Margaret R. Thomas. American Delphinium Society, Hinsdale, Ill. Price $3.00.

The new year book of the American Delphinium Society reports on the ideal delphinium. Its composite picture of the delphinium of the future may be used as "a guide for the home gardener in estimating the quality of his plants." This combined report from experts working in different soils and climates touches nearly all of the important foibles of the delphinium.

Eugene Boerner points to the desirability of sturdy, wind-resistant plants. Edward Steichen and others urge the need for breeding disease-resistant strains. Charles F. Barber abhors any tendency towards the producing of delphiniums which resemble anemones, hollyhocks or any plant other than delphiniums.

Charles O. Blodgett is on the lookout for everblooming strains. He goes further and suggests dwarf everblooming edging delphiniums. C. R. Wootton urges that preference be given to clean, brilliant self-colors. John F. Leeming wants no more than two colors on the petals, and those distinctly separated. Frank Reinelt prefers spikes which have but four to six lateral branches not more than half the height of the main spikes. Newell F. Vanderbilt wants to go back to truly perennial delphiniums. A. A. Samuelson pleads for avoidance of strains with freak blooms.

As to size, Dr. J. M. Conley wants plants no more than six feet in height, while Dr. Vladimir G. Simkhovitch wants them taller. C. A. Phillips suggests the bushy three-foot belladonna type for use in flower borders.

As for proportion of blooms, the consensus seems to be that the flowering stem of an ideal delphinium should carry blooms over at least two-thirds of its length. Of course, few contemporary delphiniums have that proportion of flower, but two-thirds seems to be the ideal.

On the cultural side, Dr. L. H. Leonian warns of a fungus pest which works in the cold weather of late Autumn and early Spring. The pest is encouraged, he says, by mulches. His suggestion is to dust the plants with bordeaux in both Fall and Spring.

Good delphiniums may be grown in any well-drained garden soil, according to R. C. Allen, provided, of course, sound cultural practices are followed. To try to alter growing conditions by mere rules "may do more harm than good."

K. E. Wheeler has found that an adequate supply of nutrients is of more importance to thrifty delphinium plants than is an alkaline soil. His advice is to feed five pounds of a 5-10-5 commercial fertilizer for each 100 square feet at the time of cutting back after the first blooming season. This feeding, he says, will make for a better second blooming.

The use of soil fungicides, such as formaldehyde, naphthalene and various proprietary mercurial products is advised by Thomas Laskaris for checking crown rot. As Mr. Laskaris points out, however, this control work is still in the experimental stage.

Organic mercury dusts for pre-sowing treatment of delphinium seeds is advised by Lester G. Bruggeman. Mr. Bruggeman also waters his seed bed mixtures of sand, leaf mold and peat moss with a solution of the same material.

A Very Desirable Arrowhead

SAGITTARIAS are interesting plants both to indoor and outdoor water gardeners. Fish fanciers who house their finny pets in attractively planted aquariums use several sagittaria species. Completely submerged in glass tanks, they seem to thrive indefinitely, sending up grass-like or graceful ribbony blades that are very beautiful in the water. The same plants, if set in shallow outdoor pools, usually produce aërial leaves of characteristic arrowhead shape.

The native arrowheads common over most of the country are often seen in lily pools along with other shallow water and bog plants. They are very variable, some being good pool subjects, while others are little more than aquatic weeds. Decidedly the best water garden arrowhead that I have found is an exotic form often supplied by waterlily nurseries under the name of double-flowering Japanese arrowhead, *Sagittaria japonica flore-pleno* but which is more correctly *S. sagittifolia flore-pleno*.

This double arrowhead makes a lush growth in my pools and grows up to 30 inches high when given good soil and is not crowded. The bloom spikes are abundantly produced in August and September and the individual blossoms resemble miniature white carnations. The spikes may develop straight but often they are oddly twisted and angular.

The plant is perfectly hardy, wintering in the form of a bulb-like "onion" buried deep in the mud. The culture is very simple. Growing plants transplant readily and the dormant "onions" may be set out early in the Spring. They like sunshine, good garden soil and shallow water, preferably not more than six inches deep. One plant will grow into a sizeable colony within a few seasons.

—S. Y. Caldwell.

Nashville, Tenn.

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New Daylilies in Review

THE weather of late Spring and early Summer has been admirable this year for the main season of hemerocallis bloom in Florida where the plants come into full flower at least two months earlier than in the northern states and continue through the subsequent months with a good showing of colorful spikes. Interest in the newer hemerocallis hybrids is showing a steady increase in Florida, as indicated by the exhibits and attendance at the second annual National Daylily Show of the American Amaryllis Society, at the Mead Botanical Gardens, June 1, with many hundreds of the newest and standard daylily varieties on display.

Among the new and scarce varieties which have been observed growing in Florida gardens this year are Princess, Majestic, Theron, Saturn, Wolof and Vulcan, all of them originations of Dr. A. B. Stout. Mrs. John J. Tigert was released by the University of Florida and is a hybrid resulting from the joint efforts of Dr. H. Harold Hume and Professor John V. Watkins. Hesperus, Golden West and Star of Gold are leading varieties from the breeding grounds of H. P. Sass, the noted iris specialist. Ruby Supreme is a new seedling introduced by R. W. Wheeler of Winter Park, Fla. La Tulipe showed itself a fine hybrid and is of Dr. H. P. Traub's origination. Golden Byng of Vimy is one of Amos Perry's latest varieties and comes from England, while Cherry and Dr. Leon, two important seedlings, are the creation of Dr. Leon H. Leonian.

The writer has all of these growing in his garden at Winter Park, Fla., and many hundreds of hemerocallis enthusiasts have seen and admired them at the 1940 and 1941 daylily shows of the American Amaryllis Society. These varieties, with Patricia and Dauntless (Stout) and the dark-flowered Emperor Jones (Hayward) may be said to have been those attracting the most interest at the daylily displays and in garden collections.

Princess is a delightful, tall, thrifty variety having lemon-colored flowers. It is one of the most desirable of Dr. Stout's daylilies. Majestic is large and orange, thrifty and vigorous. It is somewhat trumpet-shaped with pointed sepals. Theron is slight and slender with dark chocolate-colored flowers and spreading petals. It appears none too vigorous. Saturn is an interesting fulvous-on-gold hybrid of the multiflora type like Bijou or Boutonniere and is rather attractive. Wolof is a vigorous plant with dark red-orange flowers, compact and spreading.

Vulcan is a very dark mahogany red with spreading petals. It is a thrifty and handsome variety when well grown but the flowers suffer from hours in the hot sun as do many of the darker shades. Mrs. John J. Tigert is a flaming-orange and rather an improvement over Rajah, while Hesperus is a light yellow-gold with long petals and distinctive shape. Golden West is tall and vigorous with huge rich yellow trumpet-shaped flowers. Star of Gold, on the other hand, is a light yellow with long pointed petals and large flowers but wilts

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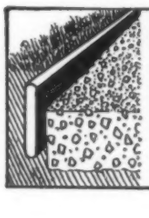

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